

AMENDMENTS TO THE CLAIMS

Claim 1 (Original): A high-strength steel sheet having excellent workability comprising:

0.06 to 0.25 % by mass of carbon;

0.5 to 3.5 % by mass of Si; and

0.7 to 4 % by mass of Mn,

wherein mother structure of said steel sheet is ferrite, second phase structure of said steel sheet comprises martensite and the residual austenite and said second phase structure ( $\alpha_1 + \gamma_R$ ) has an area fraction of 25 % or less based on the total structure when it is measured by image analysis,

and wherein said steel sheet satisfies the following requirements (1) to (3):

(1) the volume fraction ( $Vt\gamma_R$ ) of said residual austenite is 5 % or more when a measurement specimen of said residual austenite is measured by saturation magnetization measurement,

(2) the ratio ( $SF\gamma_R / Vt\gamma_R$ ) of the area fraction ( $SF\gamma_R$ ) of said residual austenite within the ferrite particle to  $Vt\gamma_R$  is 0.65 or more when the area fraction is measured by FE-SEM/EBSP, and

(3) the ratio [ $\alpha_2 / (\alpha_1 + \gamma_R)$ ] of the space factor ( $\alpha_2$ ) of said martensite to the second phase structure ( $\alpha_1 + \gamma_R$ ) satisfies the following expression:

$$0.25 \leq [\alpha_2 / (\alpha_1 + \gamma_R)] \leq 0.60,$$

wherein the space factor ( $\alpha_2$ ) is calculated from a difference between the second phase structure ( $\alpha_1 + \gamma_R$ ) and the residual austenite ( $Vt\gamma_R$ ).

Claim 2 (Currently Amended): A high-strength steel sheet having excellent workability comprising:

0.06 to 0.25 % by mass of carbon;

0.5 to 3.5 % by mass of Si; and

0.7 to 4 % by mass of Mn,

wherein mother structure of said steel sheet is ferrite, second phase structure of said steel sheet comprises martensite and the residual austenite and said second phase structure ( $\alpha_1 + \gamma_R$ ) has an area fraction of 25 % or less based on the total structure when it is measured by image analysis,

and wherein said steel sheet satisfies the following requirements (1), (4) and (3):

(1) the volume fraction ( $Vt\gamma_R$ ) of said residual austenite is 5 % or more when a measurement specimen of said residual austenite is measured by saturation magnetization measurement,

(4) the average C content of said residual austenite is 0.95 to ~~1.2~~ 1.15 % by mass, and

(3) the ratio [ $\alpha_2/(\alpha_1 + \gamma_R)$ ] of the space factor ( $\alpha_2$ ) of said martensite to the second phase structure ( $\alpha_1 + \gamma_R$ ) satisfies the following expression:

$$0.25 \leq [\alpha_2/(\alpha_1 + \gamma_R)] \leq 0.60,$$

wherein the space factor ( $\alpha_2$ ) is calculated from a difference between the second phase structure ( $\alpha_1 + \gamma_R$ ) and the residual austenite ( $Vt\gamma_R$ ).

Claim 3 (Currently Amended): A process for producing the ~~a~~ high-strength steel sheet of claim 1 by hot rolling, optionally cold rolling and continuous annealing, the process comprising the steps of:

subjecting a steel slab, which comprises the components set forth in claim 1

0.06 to 0.25 % by mass of carbon,

0.5 to 3.5 % by mass of Si, and

0.7 to 4 % by mass of Mn,

to solution treatment at 1,270°C or higher for 5 hours or more;

hot rolling the slab into a steel sheet; and

subjecting the steel sheet to austempering ~~to be wound up, after the hot rolled plate is cooled to a~~ by cooling the steel sheet after the hot rolling to the bainite transformation range and ~~maintained at~~ maintaining the steel sheet within that temperature range for 50 to 200 seconds.

#### Claim 4 (Canceled)

Claim 5 (New): The process according to Claim 3, further comprising cold rolling the steel sheet after the austempering.

Claim 6 (New): The process according to Claim 5, further comprising subjecting the cold rolled steel sheet to continuous annealing.

Claim 7 (New): The steel sheet according to Claim 2, wherein the residual austenite having the average C content of 0.95 to 1.15 % by mass is within each ferrite particle.